

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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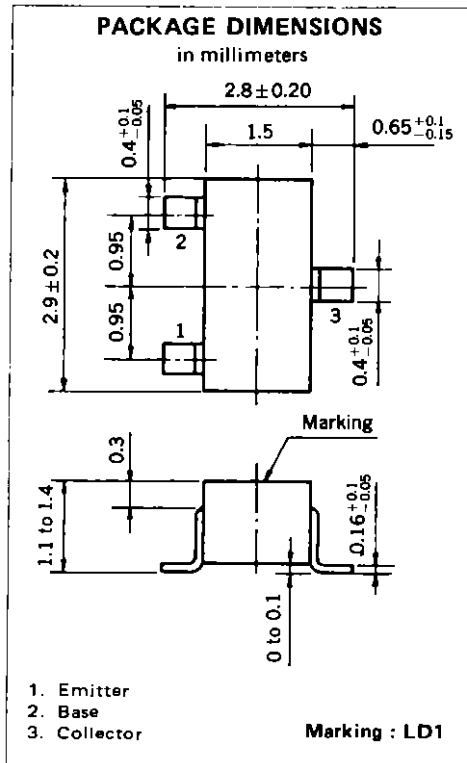
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## KEY MATRIX CONNECTION SWITCHING

## DIODE AND RESISTOR BUILT-IN TYPE NPN TRANSISTOR

## MINI MOLD

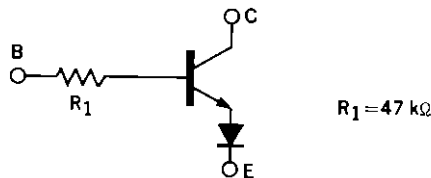


### DESCRIPTION

The FA3L4Z is Diode and Resistor Built-in type transistor designed for transistor switch of Key Matrix Connection.

### FEATURES

- Built-in Diode block reverse current



- Complementary to FN3L4Z

### ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Current ( $T_a = 25^\circ\text{C}$ )

Collector to Base Voltage	$V_{CB0}$	20	V
Collector to Emitter Voltage	$V_{CE0}$	20	V
Emitter to Base Voltage	$V_{EB0}$	5	V
Collector Current (DC)	$I_C$	20	mA
Reverse Voltage (Diode)	$V_R$	6	V

Maximum Power Dissipation

Total Power Dissipation at $25^\circ\text{C}$ Ambient Temperature	$P_T$	200	mW
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Maximum Temperatures

Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	$I_{CB0}$			100	nA	$V_{CB} = 20 \text{ V}, I_E = 0$
Diode Reverse Current	$I_{ECX}$			1.0	$\mu\text{A}$	$V_I = 5 \text{ V}, V_{EC} = 5.5 \text{ V}$
DC Current Gain	$h_{FE}^*$	30	120			$V_{CE} = 5.0 \text{ V}, I_C = 1.0 \text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)1}^*$		0.8	1.0	V	$I_C = 0.1 \text{ mA}, I_B = 0.01 \text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)2}^*$		1.0	1.2	V	$I_C = 1.0 \text{ mA}, I_B = 0.1 \text{ mA}$
Input Resistor	$R_1$	32.9	47.0	61.1	k $\Omega$	

\* Pulsed :  $PW \leq 350 \mu\text{s}$ , Duty Cycle  $\leq 2\%$

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )